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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,465	02/26/2004	Kazuo Kojima	U 015053-8	9089

7590 03/21/2006  
LADAS & PARRY  
26 West 61st Street  
New York, NY 10023

EXAMINER

RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/787,465

Applicant(s)

KOJIMA, KAZUO

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 4/12/2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.  
7) ☒ Claim(s) 3 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/12/2004.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statement filed 4/12/2004 has been placed in the application file, and the information referred to therein has been considered as to the merits.

### ***Drawings***

The drawings filed on 2/26/2004 are objected to because Figures 8-14 are described as prior art on pages 1-2 of the specification, however, the figures are not labeled as prior art. Also, on the top of page 7, the text makes reference to Figure 27. It should read Figure 2.

In addition, the applicant is required to review the numbers of the figures. The numbers do not correspond to the text of the specification. For example, with reference to figures 3-4 on page 8, line 15, "the stand ribs 31 of the negative collector for the negative electrode 28..." Element 31 does not show the stand ribs. On page 7, line 10 with regard to Figure 3, the negative electrode is labeled 28. The collector is 28. These are just examples. There are numbers errors with regard to the text, figures and element numbers that need to be corrected.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Matsubara et al. (US 6,241,790.)

The instant claim is to a negative electrode plate for battery wherein a paste-like material containing an active material is provided on the entire surface of a rectangular, conductive porous substrate including an edge portion extending along a long side thereof, said negative electrode plate being wound in a cylindrical shape to be inserted into said battery can.

Matsubara et al. (US 6,241,790) teaches a negative electrode plate for battery wherein a paste-like material containing an active material is provided on the entire surface of a rectangular conductive porous substrate including an edge portion extending along a long side thereof (col. 1, lines 10-22, col. 2, lines 1-15.) The step of winding the plate in a cylindrical shape to be inserted into said battery can is an intended use limitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The negative electrode plate may be wound in a cylindrical shape and inserted into said battery can. Thus, the claim is anticipated.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuyuki (JP 2000-299,100) in view of Matsubara et al. (US 6,241,790.)

The instant claims are to a battery comprising a battery can; a negative electrode plate for battery, said negative electrode plate having a paste-like material which contains an active material and which is provided on the entire surface of a rectangular conductive porous substrate including edge portions extending along long sides of the substrate, said negative electrode plate being wound in a cylindrical shape to be inserted into said battery can; and a plate-shaped collector having ribs formed by raising part thereof, said ribs being resistance-welded to one of said edge portions of said conductive porous substrate while said paste-like material provided on said edge portions.

Kazuyuki (JP 2000-299,100) teaches a battery comprising a battery can; a negative electrode plate for battery, said negative electrode plate having a paste-like material which contains an active material and which is provided on the surface of a rectangular conductive porous substrate including an edge portion extending along long sides of the substrate, said negative electrode plate being wound in a cylindrical shape to be inserted into said battery can; and a plate-shaped collector having ribs formed by raising part thereof, said ribs being

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resistance-welded to one of said edge portions of said conductive porous substrate while said paste-like material provided on said edge portions.

The reference does not teach an active material which is provided on the entire surface of the porous substrate, including edge portions extending along long sides of the substrate.

Matsubara et al. (US 6,241,790), however, teaches a battery including an electrode that has a paste-like material containing an active material on the entire surface of a rectangular conductive porous substrate including the edge portions extending along the long side thereof (col. 1, lines 10-22, col. 2, lines 1-15.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to include active material on the entire surface of the electrode in order to increase the amount of active material in the battery (see Matsubara, col. 2, lines 1-15.) As noted in applicant's instant specification (page 8), resistance welding will connect the electrode plate to the collector, however, it may cause the paste material to go flying due to heat or the like. The contributions of the prior art teach that an exposed region provides a secure connection between the plate and the collector. When the active material is not removed from the plate surface, the collector connection suffers from deteriorated connection strength (col. 2, lines 25-30.) Applicant's invention inherently requires the connection between the electrode substrate and the current collector. During the process, the paste material becomes loose and is removed to form the welded connection. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

***Allowable Subject Matter***

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach a battery having a conductive porous substrate with a specific electrical resistance and thickness and a plate-like collector with a specific electrical resistance and thickness, wherein the relationship  $0.25 < R < 2.5$  is satisfied, assuming that a specific electrical resistance of said conductive porous substrate is  $r_b$ , a thickness of said conductive porous substrate being  $t_b$ , a ratio  $r_b/t_b$  of  $r_b$  to  $t_b$  being  $R_b$ , a specific electrical resistance of said plate-like collector being  $r_c$ , a thickness of said plate-like collector being  $t_c$ , a ratio  $r_c/t_c$  of  $t_c$  to  $r_c$  being  $R_c$ , and a ratio  $R_c/R_b$  of  $R_c$  to  $R_b$  being  $R$ . The prior art does not teach specific material and thicknesses as defined.

***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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*Mark Ruthkosky*  
3/17/06